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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/851,089	05/09/2001	Jong-Woon Oh	SEC.837	2769

7590 05/20/2003

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EXAMINER

COLE, LAURA C

ART UNIT

PAPER NUMBER

1744

DATE MAILED: 05/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/851,089

Applicant(s)

OH ET AL.

Examiner

Laura C Cole

Art Unit

1744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claims 4-6 and 11-13 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. In claims 4-6 and 11-13 the brush arm "moves" or is "moved" in a particular direction to have an orientation. In the claims and the specification do not disclose means for how the movement is to be accomplished. The only structure claimed in claims 4-6 and 11-13 would be the brush arm that is claimed previously.

Claim Rejections - 35 USC § 112

2. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 recites the limitation "the direction" in Line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent

granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-7 are rejected under 35 U.S.C. 102(e) as being anticipated by Konishi et al., USPN 6,385,805.

Konishi et al. disclose a scrubbing apparatus that comprises a pure water supply (Column 6 Lines 13-15), first and second injectors that eject pure water onto a wafer with nozzles on the ends (Figures 2-4, first injector/nozzle (43) and (41), second injector/nozzle (53) and (51), wafer (W)), a brush that cleans the wafer (Figures 2-4 (31)) and moves horizontally, a brush arm (Figure 2 (33)), the first injector ejects the pure water toward the center of the wafer (Column 5 Lines 49-53) on the upper side (Figures 2-4) and the second injector is disposed adjacent to the brush (as it appears in Figures 2-3) and supplies pure water to the wafer (Column 5 Lines 62-66). The second nozzle is disposed to face a top surface of the wafer (Figures 2-4). The first injector could be arranged to be perpendicular to the second injector (Figure 2 displays that both 43a and 53a can be revolved in a direction, so at some point in the operation the first injector may be perpendicular to the second injector. The brush moves on a horizontal axis (horizontally) with respect to a direction of the first injector (Figure 3 displays movement arrows of the roller brush).

4. Claims 1, 2, and 5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Maekawa et al., USPN 5,868,866.

Maekawa et al. disclose a method and apparatus for cleaning a workpiece that comprises a pure water supply (supplied by injectors, Column 4 Lines 6-12), first and

second injectors that direct pure water onto a wafer (Figure 2 (20) and (20a) are two injectors, wafer (W)), first and second nozzles attached to ends of the injectors (nozzles are end portion of (20) and (20a) of where the liquid is ejected), a brush (Figure 2 (34) that has a horizontal movement (Figure 2 (B)), a brush arm (Figure 2 (32)), and the second injector is disposed adjacent (adjacent is defined as close to or lying near according to The American Heritage® Dictionary of the English Language, Fourth Edition, Copyright © 2000 by Houghton Mifflin Company) the brush (Figure 2).

5. Claims 1-8 and 10-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishimura et al., USPN 5,829,087 (herein referred to as '087).

'087 discloses a substrate cleaning apparatus wherein there are first and a plurality of second injectors (Figure 2, first injectors are the "upper" cluster of (6) and the second injectors are the "lower" cluster of (6)) that supply deionized (pure) water (Column 5 Lines 50-53), first and a plurality of second nozzles (nozzles are the end portions of (6) that direct pure water onto a wafer (W), a brush (Figure 1 (8)), a brush arm (Figures 1 and 2 (7)), the first and second injectors eject pure water on an upper position (Figures 1 and 2), where the second injectors are adjacent to the brush (Figure 2). The second nozzle(s) are disposed to face the top surface of the wafer (as displayed in Figures 1 and 2), the first injector is arranged perpendicular to the second injector(s) (in Figure 2 the rightmost of the first or upper injector appears to be perpendicular from the leftmost of the second injectors), the brush moves horizontally according to the hidden lines of Figure 2. The second injectors appear to be of a plurality of "pipe lines" as seen in Figure 2 to be cylindrical pipes).

6. Claims 1-8 and 10-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Nishimura et al., USPN 6,286,525 (herein referred to as '525).

'525 discloses a substrate cleaning apparatus wherein there are first and a plurality of second injectors (Figure 2, first injectors are the "left" cluster of (6) and the second injectors are the "right" cluster of (6)) that supply deionized (pure) water (Column 5 Lines 8-11), first and a plurality of second nozzles (nozzles are the end portions of (6) that direct pure water onto a wafer (W), a brush (Figure 1 (8)), a brush arm (Figures 1 and 2 (7)), the first and second injectors eject pure water on an upper position (Figures 1 and 2), where the second injectors are adjacent to the brush (Figure 2). The second nozzle(s) are disposed to face the top surface of the wafer (as displayed in Figures 1 and 2), the first injector is arranged perpendicular to the second injector(s) (as displayed in Figure 2), the brush moves horizontally according to the hidden lines and arrows of Figure 2. The second injectors appear to be of a plurality of "pipe lines" as seen in Figure 2 to be cylindrical pipes).

Claim Rejections - 35 USC § 103.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 8-9 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura et al., USPN 6,286,525 (herein referred to as '525).

'525 discloses all elements above, however further provides another embodiment (Figure 9) that discloses a plurality of injectors (Figure 9 (21a) and (21b)) that have nozzles (Figure 9 (21a) and (21b)), that has a cleaning liquid supply (Figure 9 (22), the only cleaning liquid disclose in the specification is the deionized or "pure" water Column 5 lines 9-10), the plurality of injectors comprise a plurality of pipelines (Column 7 Line 66 to Column 8 Line 4) formed within the circumference of the brush arm, and the ends facing a top surface of the wafer (Figure 9). The second injectors are tightly fixed to the brush arm (Figure 9). This embodiment does not disclose a first injector that is perpendicular to the second injectors and first nozzle.

It would have been obvious to one of ordinary skill in the art to add the teaching of the first injector and nozzle of '525 to the other embodiment of '525 in order to have a consistent layer of deionized water ejected on the surface of the wafer to assist in cleaning and rinsing.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura C Cole whose telephone number is (703) 305-7279. The examiner can normally be reached on Monday-Thursday, 7am - 4:30pm, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Warden can be reached on (703) 308-2920. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-8772 for regular communications and (703) 873-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

lcc

lcc
May 8, 2003

Robert J. Warden, Sr.

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